



CHEMISTRY NMDCAT

(UNIT-7)

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SAEED MDCAT TEAM

TOPICS



ELECTROCHEMISTRY

- Q.1** Oxidation state of "P" in phosphonium ion (PH_4^+) is
 a. +3
 b. -3
 c. +5
 d. -4
- Q.2** Which one of the following statements is incorrect?
 a. Oxidation always takes place at anode
 b. The standard reduction potentials are always taken as negative
 c. Oxidation potential and reduction potential of an electrode are equal in magnitude
 d. Anode contain -ve charge in galvanic cell
- Q.3** Arrange Mg, K and Na in the order of their decreasing reduction potentials
 a. K, Na, Mg
 b. Mg, K, Na
 c. Na, K, Mg
 d. Mg, Na, K
- Q.4** E° of $\text{Fe}^{+2} / \text{Fe}$ is -0.44 V ; E° of $\text{Cu}^{+2} / \text{Cu}$ is $+0.34 \text{ V}$. Then in the cell
 a. Cu oxidizes Fe^{2+} ion
 b. Cu reduces Fe^{2+} ion
 c. Cu^{2+} oxidizes Fe
 d. Cu^{2+} ion reduces Fe
- Q.5** Four alkali metals A, B, C and D are having respectively standard electrode potentials as -3.05V , -1.66V , -0.40V and -0.80V , Which one will be the weak reducing agent?
 a. A
 b. B
 c. C
 d. D
- Q.6** Which one of the following reactions takes place at the anode when an aqueous solution of CuSO_4 is electrolyzed by using both copper electrodes?
 a. $2\text{SO}_4^{2-} + 2\text{H}_2\text{O} \longrightarrow 2\text{H}_2\text{SO}_4 + \text{O}_2 + 4\text{e}^-$
 b. $\text{Cu} \longrightarrow \text{Cu}^{2+} + 2\text{e}^-$
 c. $\text{SO}_4^{2-} \longrightarrow \text{SO}_2 + \text{O}_2 + 2\text{e}^-$
 d. $2\text{H}_2\text{O} \longrightarrow \text{O}_2 + 4\text{H}^+ + 4\text{e}^-$
- Q.7** Which of the following metal can liberate hydrogen from halogen acid
 a. Ag
 b. Cu
 c. Zn
 d. Hg
- Q.8** Which of the following element act as inert electrode
 a. Cu
 b. Pt
 c. Ag
 d. Zn
- Q.9** Strong reducing agents have large negative value of
 a. Oxidation potential
 b. Redox potential
 c. Reduction potential
 d. Emf of cell
- Q.10** Which element exhibit maximum oxidation number?
 a. N
 b. S
 c. Cr
 d. Mn
- Q.11** Which of the following is true in the case of Zn-Cu cell?
 a. The flow of electrons takes place from copper to zinc
 b. E°_{red} of copper electrode is less than that of zinc electrode
 c. Zinc acts as an anode and copper as cathode
 d. All are correct
- Q.12** In a galvanic cell
 a. Chemical energy is converted into electricity
 b. Chemical energy is converted into heat



- c. Electrical energy is converted into chemical energy
- d. Electrical energy is converted into heat

Q.13 Molten NaCl conducts electricity due to the presence of

- a. Free electrons
- b. Free ions
- c. Free molecules
- d. Atoms of Na and Cl



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- Q.14 Electricity in voltaic cell is produced due to**
a. Neutralization reaction
b. Reduction reaction
c. Oxidation reaction
d. Redox reaction
- Q.15 Salt bridge transfers**
a. Electrons
b. Current
c. Anion
d. Ions
- Q.16 Temperature for the measurement of standard electrode potential is**
a. 298K
b. 0°C
c. 300K
d. 310K
- Q.17 The element that act as cathode always have _____ position in electrochemical cell**
a. Higher
b. In middle
c. Lower
d. No effect of position
- Q.18 Greater value of standard reduction potential smaller will be tendency**
a. To form positive ions
b. To gain electrons
c. To form negative ions
d. All are possible
- Q.19 Consider the following redox reaction:**
$$2\text{MnO}_4^- + 3\text{ClO}_3^- + \text{H}_2\text{O} \longrightarrow 3\text{ClO}_4^- + 2\text{MnO}_2 + 2\text{OH}^-$$

The reducing agent is
a. H_2O
b. MnO_2
c. ClO_3^-
d. MnO_4^-
- Q.20 In which of the following sulphur shows +4 oxidation state**
a. H_2S
b. $\text{Na}_2\text{S}_2\text{O}_3$
c. H_2SO_3
d. H_2SO_4
- Q.21 Rusting of iron occurs due to**
a. Reduction
b. Oxidation
c. Hydrogenation
d. Sublimation
- Q.22 Electrode potential data are given below:**
$$\text{Fe}_{(aq)}^{+3} + e^- \longrightarrow \text{Fe}_{(aq)}^{+2} \quad ; E^\circ = +0.77\text{V}$$

$$\text{Al}_{(aq)}^{+3} + 3e^- \longrightarrow \text{Al}_{(s)} \quad ; E^\circ = -1.66\text{V}$$

$$\text{Br}_2 + 2e^- \longrightarrow 2\text{Br}_{(aq)}^- \quad ; E^\circ = +1.08\text{V}$$

Based on the data, the reducing power of Fe^{2+} , Al and Br^- will increase in the order
a. $\text{Br}^- < \text{Fe}^{2+} < \text{Al}$
b. $\text{Al} < \text{Br}^- < \text{Fe}^{2+}$
c. $\text{Fe}^{2+} < \text{Al} < \text{Br}^-$
d. $\text{Al} < \text{Fe}^{2+} < \text{Br}^-$
- Q.23 The kinetic energy of gas molecules increases on increasing its absolute temperature due to increase in molecular**
a. Mass
b. Velocity
c. Volume
d. Pressure
- Q.24 The Br_2 in the equation $\text{Br}_2 + \text{NaOH} \longrightarrow \text{NaBrO}_3 + \text{NaBr} + \text{H}_2\text{O}$ is**
a. Oxidized
b. Reduced
c. Disproportionated
d. Acid base reaction
- Q.25 Oxidation is defined as**
a. Gain of 'H'
b. Loss of 'O'
c. Gain of electron
d. Increase in oxidation state
- Q.26 Metallic conduction is due to**
a. Movement of electrons
b. Movement of cations
c. Movement of neutral species
d. Movement of anions
- Q.27 The reaction taking place in electrolytic cell is**
a. Spontaneous
b. Non-spontaneous
c. Acid-base
d. Non-spontaneous reduction only
- Q.28 The salt bridge consists of _____ in the gel**
a. HCl
b. KCl
c. CaCl_2
d. NH_4Cl



- Q.42 Which of the following is a redox reaction**
- a. $\text{KOH} + \text{HCl} \rightarrow \text{KCl} + \text{H}_2\text{O}$ b. $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$
c. $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{HCl}$ d. $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$
- Q.43 Hall-Beroult Process is used for the extraction of**
- a. Na b. Al
c. Cu d. Mg
- Q.44 When NaOH is added to acetic acid solution, the conduction of resulting solution**
- a. Increases b. Decreases
c. Remains d. Becomes zero
- Q.45 To balance oxygen in ion electron method in acidic medium, we add**
- a. H^+ ion (b) OH^- ion
c. H_2O d. O_2
- Q.46 Which statement below is NOT true for the reaction $\text{Fe}^{3+} + \text{e}^- \rightarrow \text{Fe}^{2+}$**
- a. Fe^{3+} is reduced b. Oxidation state of Fe has changed
c. Fe^{3+} can act as an oxidizing agent d. Both Fe^{2+} and Fe^{3+} are called anions
- Q.47 _____ can displace Hydrogen from acid more easily**
- a. Au b. Al
c. Pb d. Ca
- Q.48 What reaction will take place at SHE. When Mg ($E^\circ = -2.37$) half-cell is attached to it**
- a. $\text{Mg}^{++} + 2\text{e}^- \rightarrow \text{Mg}$ b. $\text{Mg} \rightarrow \text{Mg}^{++} + 2\text{e}^-$
c. $\text{H}_2 \rightarrow 2\text{H}^+ + 2\text{e}^-$ d. $2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$
- Q.49 Which one of the following metal will make a layer on other three metals when dipped in its aqueous solution**
- a. Cr b. Al
c. Cu d. Zn
- Q.50 The standard reduction potential of two electrodes are given as**
A = + 1.36 V B = -0.44 V the emf of the cell is
- a. +1.36V b. +0.92V
c. -1.36V d. + 1.80V

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Chem T-7

| | A | B | C | D | | A | B | C | D | | A | B | C | D | | A | B | C | D |
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